

**REMARKS**

Claims 11-22 were previously pending in the application. This Amendment amends claims 11, 15, and 16, and adds new claims 23-25. Claims 12-14 and 17-22 remain unchanged. Claims 11, 15, and 23 are independent.

**The Claimed Invention**

Conventional appliances sometimes are operated in a manner in which a fixedly pre-determined amount of washing or rinsing agents is added to a cleaning liquid and this brings with it the disadvantage that, during the washing or rinsing process, the quantity of washing or rinsing agent poured into the appliance by the user is completely used and consumed without taking into account the quantity of washing and rinsing agent actually required. Dishwashers are known in which the water hardness of the cleaning liquid is determined by suitable sensors to determine the amount of rinse aid added at the end of the rinsing program. However, other crucial criteria for the quantity of cleaning agent required, such as for example, the loading state of the dishwasher or the type of contamination of the items to be cleaned are not taken into account.

The present invention as exemplified by, for example, an exemplary embodiment recited in independent claim 11 of the present application, relates to an appliance operable to carry out at least one cleaning process using cleaning liquid. The appliance includes an assembly for placing into contact with one another a cleaning liquid and at least one item to be cleaned. Also, the appliance includes a system for supplying cleaning agent into the cleaning liquid, the system including a sensor that determines the content of washing-active substances in the cleaning liquid during the cleaning process and a dosing device that alternately supplies additional cleaning agent to the cleaning liquid during the at least one cleaning process in the event that the sensed content of washing-active substances is below a predetermined lower value and supplies fresh water to the cleaning liquid in the event that the content of washing-active substances is above a predetermined upper value.

The present invention as exemplified by, for example, another exemplary embodiment recited in independent claim 15 of the present application, relates to a method

for operating an appliance operable to carry out at least one cleaning process using cleaning liquid, the method comprising the steps of determining a content in a cleaning liquid of washing-active substances that are supplied therinto via a supply of cleaning agent into the cleaning liquid by a cleaning agent supply system; supplying additional cleaning agent to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is determined to be below a predetermined lower value; and supplying fresh water to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is determined to be above a predetermined upper value.

In this manner, the present invention determines the content of washing-active substances in the cleaning liquid continuously during the cleaning process and, on this basis, regulates the addition of cleaning agents to the cleaning liquid independently of influences such as the degree of contamination, temperature and water hardness in order to achieve the optimal content of washing active substances in the cleaning liquid. Thus, both under-dosing with inadequate cleaning effect and also over-dosing with negative economical and ecological consequences can be avoided. In this way, the cleaning performance and the consumption of resources are optimised and the environmental influences are minimised. See, e.g., page 3, lines 25-30; page 4, lines 1-5, and 27-30; page 5, lines 1-4; page 7, lines 18-30; page 8, lines 1-4.

#### **The Rejections under 35 U.S.C. § 102**

In the Office Action, claims 11 and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by the Vogel reference (U.S. Patent No. 5,725,001). Claims 11-14 are rejected under 35 U.S.C. § 102(b) as being anticipated by the Buttner et al. reference (GB 2052251 A).

Applicants respectfully traverse these rejections.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. [...]

identical invention must be shown in as complete detail as is contained in the ... claim."  
M.P.E.P. § 2131.

### **The Rejection over the Vogel reference**

Applicants respectfully submit that the Vogel reference does not disclose the features of the claimed invention including a sensor that determines the content of washing-active substances in the cleaning liquid during the cleaning process and a dosing device that alternately supplies additional cleaning agent to the cleaning liquid in the event that the sensed content of washing-active substances is below a predetermined lower value and supplies fresh water to the cleaning liquid in the event that the content of washing-active substances is above a predetermined upper value, as recited by independent claim 11.

As explained above, these features are important for avoiding both under-dosing with inadequate cleaning effect and also over-dosing with negative economical and ecological consequences. In this way, the cleaning performance and the consumption of resources are optimised and the environmental influences are minimised. See, e.g., page 3, lines 25-30, and page 4, lines 1-5.

The Vogel reference very clearly does not disclose these features. Instead, the Vogel reference discloses only dispensing additional detergent until the pH reaches the value for the program being run. The Vogel reference does not disclose supplying fresh water to the cleaning liquid in the event that the content of washing-active substances is above a predetermined upper value, as recited by independent claim 11.

The Office Action alleges that the Vogel reference teaches this feature by disclosing that an extra rinse cycle with fresh water is run by the program control. See col. 2, lines 20-31. In the Response to Arguments, the Office Action states that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. The Office Action states that, if the prior art structure is capable of performing the intended use, then it meets the claim. The Office Action alleges that the apparatus disclosed

by the Vogel reference is fully capable of supplying fresh water to the cleaning liquid in the event that the content of washing-active substances is above a predetermined value.

First, contrary to the assertions in the Office Action, Applicants respectfully submit that running an additional rinse cycle after the washing process is completed clearly has nothing to do with determining the content of washing-active substances in the cleaning liquid during the cleaning process and supplying fresh water to the cleaning liquid during the cleaning process in the event that the content of washing-active substances is above a predetermined upper value, as recited in claim 11.

The Vogel reference very clearly explains that the extra rinse cycle is run to partially neutralize any residual alkalinity that exists on the dishes after the washing cycle is completed. See, e.g., col. 2, lines 19-31. The extra rinse cycle has nothing to do with the content of washing-active substances in the cleaning liquid during the cleaning process. Indeed, the extra rinse cycle has nothing to do with preventing over-dosing during the washing cycle. Instead, the Vogel reference simply provides a method that deals with the consequences of over-dosing (e.g., partially neutralize any residual alkalinity that exists on the dishes) after the washing cycle is completed.

Thus, the Vogel reference does not disclose at least a sensor that determines the content of washing-active substances in the cleaning liquid during the cleaning process and a dosing device that alternately supplies additional cleaning agent to the cleaning liquid in the event that the sensed content of washing-active substances is below a predetermined lower value and supplies fresh water to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is above a predetermined upper value, as recited by independent claim 11.

Second, contrary to the assertions in the Office Action, Applicants respectfully submit that that nothing in the Vogel reference discloses that it is capable of determining the content of washing-active substances in the cleaning liquid during the cleaning process and supplying additional cleaning agent to the cleaning liquid in the event that the sensed content of washing-active substances is below a predetermined lower value and supplying

fresh water to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is above a predetermined upper value.

Instead, as explained above, the Vogel reference discloses a device that deals with the consequences of over-dosing (e.g., partially neutralize any residual alkalinity that exists on the dishes) after the washing cycle is completed by running an extra rinse cycle to partially neutralize any residual alkalinity that exists on the dishes after the washing cycle is completed. See, e.g., col. 2, lines 19-31. The extra rinse cycle has nothing to do with the content of washing-active substances in the cleaning liquid *during* the cleaning process. Indeed, the extra rinse cycle has nothing to do with preventing over-dosing during the washing cycle.

For at least the foregoing reasons, the Vogel reference does not disclose all of the features of the claimed invention.

Applicants respectfully request withdrawal of this rejection.

#### **The Rejection over the Buttner et al. reference**

Applicants respectfully submit that the Buttner et al. reference does not disclose the features of the claimed invention including a sensor that determines the content of washing-active substances in the cleaning liquid during the cleaning process and a dosing device that alternately supplies additional cleaning agent to the cleaning liquid in the event that the sensed content of washing-active substances is below a predetermined lower value and supplies fresh water to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is above a predetermined upper value, as recited by independent claim 11.

As explained above, these features are important for avoiding both under-dosing with inadequate cleaning effect and also over-dosing with negative economical and ecological consequences. In this way, the cleaning performance and the consumption of resources are optimised and the environmental influences are minimised. See, e.g., page 3, lines 25-30, and page 4, lines 1-5.

The Buttner et al. reference discloses controlling at least one of the volume of water supplied to the machine, the number of changes of such water and the metering of at least one additive. The Buttner et al. reference does not explicitly disclose that water is added during the cleaning process. Moreover, the Buttner et al. reference describes “metering” the at least one additive, but does not mention “metering” the supply of water. This appears to show a distinction between the manner in which the additive is controlled and the manner in which the volume of water is controlled. Similarly, when describing the water, the Buttner et al. reference generally refers to controlling how many rinsing operations are needed. Hence, the Buttner et al. reference appears to be referencing individual rinsing cycles when describing controlling at least one of the volume of water supplied to the machine and the number of changes of such water.

As explained above, the Buttner et al. reference does not explicitly disclose that water is added during the cleaning process. For at least the foregoing reasons, the Buttner et al. reference does not disclose all of the features of the claimed invention.

Applicants respectfully request withdrawal of this rejection.

#### **The Rejections under 35 U.S.C. § 103**

In the Office Action, claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Vogel reference. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Vogel reference in view of the Buttner et al. reference. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Buttner et al. reference. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Vogel reference in view of the Livingston et al. reference (U.S. Patent No. 4,509,543). Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Buttner et al. reference in view of the Livingston et al. reference.

Applicants respectfully traverse these rejections.

**The Rejection over the Vogel Reference**

Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Vogel reference.

Applicants respectfully traverse this rejection.

Regarding claim 15, the Office Action acknowledges that the Vogel reference does not expressly disclose supplying fresh water to the cleaning liquid during the cleaning process in the event that the content of washing-active substances is above a predetermined upper value. However, the Office Action alleges that it would have been obvious to one of ordinary skill in the art to instead try supplying the fresh water to the cleaning liquid during the cleaning process in order to correct a potential overdosing of cleaning agent with a reasonable expectation of success (MPEP 2143 E). The Office Action alleges that it would have been desirable to add the fresh water to the cleaning liquid in order to eliminate the need for an extra rinse cycle, thereby conserving water by using less fresh water than would be required for an additional cycle.

Contrary to the assertions in the Office Action, Applicants respectfully submit that it would not have been obvious to try supplying the fresh water to the cleaning liquid during the cleaning process in order to correct a potential overdosing of cleaning agent with a reasonable expectation of success. The Vogel reference does not disclose in any way that supplying additional water during the cleaning process will neutralize any residual alkalinity that exists on the dishes after the whole wash program is completed. The Office Action also does not cite any support for the assertion that there is a reasonable expectation that supplying additional water during the cleaning process will neutralize any residual alkalinity that exists on the dishes after the whole wash program is completed.

Moreover, neither the Vogel reference nor the Office Action provides any explanation or support for the assertion that adding water to the cleaning liquid will in any way eliminate the need for an extra rinse cycle in order to neutralize any residual alkalinity that exists on the dishes after the whole wash program is completed. Furthermore, neither the Vogel reference nor the Office Action provides any explanation or support for the assertion that adding water to the cleaning liquid, in quantities sufficient to neutralize any

residual alkalinity that exists on the dishes after the whole wash program is completed, would use less fresh water than would be required for an additional rinsing cycle.

The Office Action also asserts that the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results. Contrary to the assertions in the Office Action, Applicants respectfully submit that the claimed invention does not involve a mere selection of the order of performing process steps. Instead, claim 15 clearly recites supplying additional cleaning agent to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is determined to be below a predetermined lower value; and supplying fresh water to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is determined to be above a predetermined upper value. Clearly, if the order of the rinsing step was selected such that the rinsing step was performed during the washing process, the principal of the operation of the cleaning process would be detrimentally affected by such a simultaneous rinsing step. Indeed, the rinsing step would cause the pH-value to be lower, thereby requiring the addition of even more additive to raise the washing agent concentration to the desired level.

For at least the foregoing reasons, independent claim 15 is patentable over the Vogel reference.

Applicants respectfully request withdrawal of this rejection.

**The Rejection over the Vogel Reference and the Buttner et al. Reference**

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Vogel reference in view of the Buttner et al. reference.

Applicants respectfully traverse this rejection.

The Buttner et al. reference does not make up for the deficiencies of the Vogel reference. As explained in greater detail below with respect to independent claim 15, the Buttner et al. reference also fails to disclose or suggest these features of independent claim 15, from which claim 20 depends.



Thus, none of the applied references discloses or suggests the subject matter defined by independent claim 15, from which claim 20 depends.

Applicants respectfully request withdrawal of this rejection.

**The Rejection over the Buttner et al. Reference**

Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Buttner et al. reference.

Applicants respectfully traverse this rejection.

Regarding claim 15, the Office Action acknowledges that the Buttner et al. reference teaches that the controller uses the measured content of washing-active substances in the liquid to control the volume of water supplied to the washing machine and the number of changes of the water (Page 1, lines 82-100 Page 2, lines 21-35, 96- 107). The Office Action alleges that it is reasonably expected that this water is fresh water. The Office Action acknowledges that the Buttner et al. reference does not expressly disclose that this water is supplied in the event that the content of washing- active substances is determined to be above a predetermined upper value. However, the Office Action alleges that it would have been obvious to one of ordinary skill in the art to supply additional water to the cleaning liquid to correct a potential overdosing of cleaning agent with a reasonable expectation of success (MPEP 2143 E).

Contrary to the assertions in the Office Action, Applicants respectfully submit that it would have been obvious to one of ordinary skill in the art to supply additional water to the cleaning liquid to correct a potential overdosing of cleaning agent with a reasonable expectation of success.

As explained above, the Buttner et al. reference discloses controlling at least one of the volume of water supplied to the machine, the number of changes of such water and the metering of at least one additive. The Buttner et al. reference does not explicitly disclose that water is added during the cleaning process. Moreover, the Buttner et al. reference describes “metering” the at least one additive, but does not mention “metering” the supply of water. This appears to show a distinction between the manner in which the additive is

controlled and the manner in which the volume of water is controlled. Similarly, when describing the water, the Buttner et al. reference generally refers to controlling how many rinsing operations are needed. Hence, the Buttner et al. reference appears to be referencing individual rinsing cycles when describing controlling at least one of the volume of water supplied to the machine and the number of changes of such water.

Moreover, the Buttner et al. reference discloses that the pH-value drops during the course of the washing program. Hence, one of ordinary skill in the art would not have had a reasonable expectation of success in modifying the Buttner et al. reference to supply additional water to the cleaning liquid, as alleged. Applicants respectfully submit that it would not have been obvious to add additional water, which would further reduce the pH-value, when the Buttner et al. reference is concerned with ensuring that the pH-value is brought up to a desired level.

The Office Action also asserts that the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results. Contrary to the assertions in the Office Action, Applicants respectfully submit that the claimed invention does not involve a mere selection of the order of performing process steps. Instead, claim 15 clearly recites supplying additional cleaning agent to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is determined to be below a predetermined lower value; and supplying fresh water to the cleaning liquid during the at least one cleaning process in the event that the content of washing-active substances is determined to be above a predetermined upper value. Clearly, if the order of the rinsing step was selected such that the rinsing step was performed during the washing process, the principal of the operation of the cleaning process would be detrimentally affected by such a simultaneous rinsing step. Indeed, the rinsing step would cause the pH-value to be lower, thereby requiring the additional of even more additive to raise the washing agent concentration to the desired level.

For at least the foregoing reasons, independent claim 15 is patentable over the Buttner et al. reference.

Applicants respectfully request withdrawal of this rejection.

**The Rejection over the Vogel Reference and the Livingston et al. Reference**

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Vogel reference in view of the Livingston et al. reference (U.S. Patent No. 4,509,543).

Applicants respectfully traverse this rejection.

The Livingston et al. reference does not make up for the deficiencies of the Vogel reference. Indeed, the Office Action does not rely on this reference for teaching these features of claim 15. Thus, none of the applied references discloses or suggests the subject matter defined by independent claim 15, from which claims 21 and 22 depend.

Applicants respectfully request withdrawal of this rejection.

**The Rejection over the Buttner et al. Reference and the Livingston et al. Reference**

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Buttner et al. reference in view of the Livingston et al. reference.

Applicants respectfully traverse this rejection.

The Livingston et al. reference does not make up for the deficiencies of the Buttner et al. reference. Indeed, the Office Action does not rely on this reference for teaching these features of claim 15. Thus, none of the applied references discloses or suggests the subject matter defined by independent claim 15, from which claims 21 and 22 depend.

Applicants respectfully request withdrawal of this rejection.

**New Claims**

New claims 23-25 are added. No new matter is added. See, e.g., page 3, lines 25-30; page 4, lines 1-5, and 27-30; page 5, lines 1-4; page 7, lines 18-30; page 8, lines 1-4.

For example, none of the applied references discloses or suggests the subject matter defined by claims 23-25 for at least the same reasons as independent claim 15 above.

Moreover, none of the applied references discloses or suggests at least determining a content of the washing-active substances in the cleaning liquid using a sensor and

comparing the content of the washing-active substances to a predetermined lower value and a predetermined upper value; supplying additional cleaning agent to the cleaning liquid during the at least one cleaning process when the content of washing-active substances is below the predetermined lower value; and supplying fresh water to the cleaning liquid during the at least one cleaning process when the content of washing-active substances above the predetermined upper value, as recited in claim 23.

Applicants respectfully request allowance of these claims.

**CONCLUSION**

In view of the above, entry of the present Amendment and allowance of Claims 11-25 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

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